



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION V**

**DATE:** February 22, 2007

**SUBJECT:** Monitoring Well Recommendations  
Chemical Recovery System Site

**FROM:** Dr. Luanne Vanderpool, Geologist  
Advanced Analysis & Decision Support Section

**TO:** Gwendolyn Massenburg, RPM

In my 1/16/07 memo I made some general recommendations regarding improving the ground water monitoring network. In that memo I stated:

“Assuming the remedy decision goes forward as proposed, as a part of remedy design I recommend additional monitoring wells located downgradient (along the same flow path) of MW-6, as well as lateral to the plume. Depth should be determined based on vertical profiling to ensure that MW-6 represents the core of the plume and that new wells are screened at appropriated depths. Wells are needed near the river to show that contamination is not underflowing the river. Also needed are wells located on the western side of the river to confirm that there is not contamination underflowing the river, particularly if significant contamination is found in groundwater on the eastern side of the river.”

**Specific Recommendations**

The following are my specific recommendations.

1. Vertically profile adjacent to MW-6 to confirm screen depth; sample MW-6 concurrently. If the vertical profiling at MW-6 reveals substantially higher levels of contamination at other depth(s), then replacing/augmenting MW-6 with a well screened at the depth of maximum contamination would be needed
2. Install 2 new shallow wells downgradient of MW-6; new well A south of the location of GP-32, the other well B near the edge of the top of the river bank. Vertically profile both locations to determine screen depth. These should be located along the core of the plume.
3. Install a shallow well (C) in the vicinity of the location of GP-36; (this will be slightly south of downgradient of MW-5). Vertically profile to determine screen depth. High levels were found at GP-16. It is unclear how far north the contamination extends (MW-5 is probably upgradient of this contamination). Hopefully this new well will serve as a lateral well and not find significant contamination.
4. Install deep (D) and shallow (E) wells downgradient of C near the edge of the top of the river bank.

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5. Install deep well (F) adjacent to new well B. There is some contamination in MW-8D. The contamination is deep enough and limited vertical flow information suggests that if the contamination reaches the river, it would underflow.
6. Install deep (G) and shallow (H) well west of new wells B & F on the west side of Black River. Vertical profiling may be optional; screen placement could probably be reasonably decided based on the profiling on the east side of the river.
7. Install deep (I) and shallow (J) well west of new wells D & E on the west side of Black River. Vertical profiling may be optional.
8. Install shallow well (K) at or slightly west of GP-6. Vertically profile to determine screen depth. Compared to levels of contamination found at MW-6 and GP-16, contamination at the northern edge of the site is minor. But MW-1 and GP-6 have levels above criteria and screen depth of MW-1 is uncertain.

The most important wells are A, B, C, F. If there are not high levels found at C, then D and E are less important. If levels are low at B & F then G & H are less important. If levels are low at D & E, then I & J are less important. The deep shale wells G and I on the west side of the river are more important than the shallow wells H and J. The depth of the river valley makes underflow from the horizon screened by MW-6 unlikely; however levels of contamination at MW-6 are so high less than 200 feet from the river, that some monitoring at this horizon on the west side of the river seems justified. .

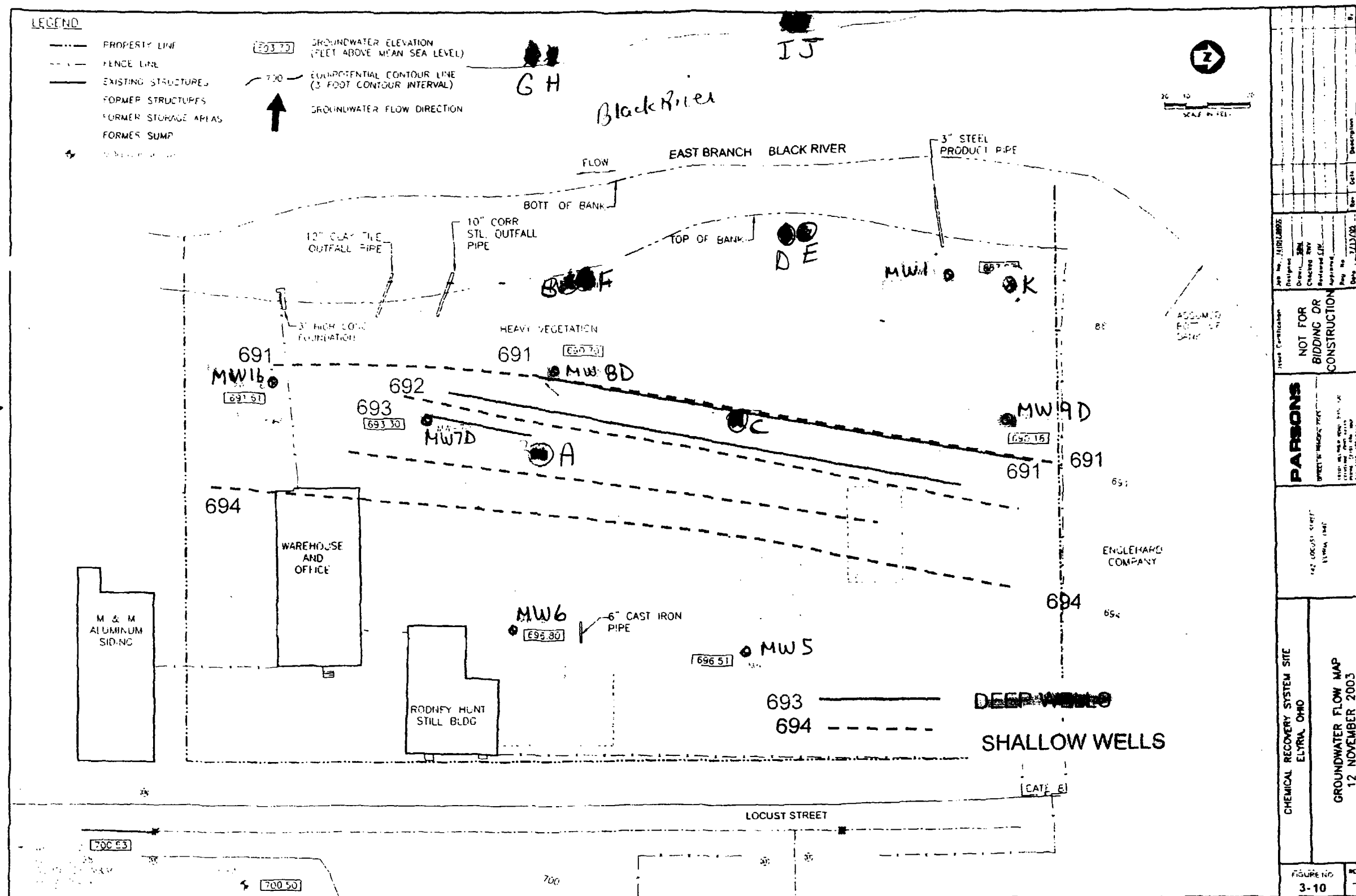
Protocols should be followed during all the drilling (but particularly near MW-6) to detect any DNAPL.

#### **General Rationale for the Recommendations**

There is a significant gap in the characterization of this site, specifically the lack of any wells directly downgradient of MW-6 located along a flow path that passes through the MW-6 well screen. Similarly, substantial contamination was detected in the fill/sand at GP-16. It is unknown if more contamination would be found deeper (e.g. at the depth of MW-6) and there is no well downgradient of MW-6 located along a flow path that represents this contamination. Long term monitoring for MNA requires wells located along the core of the plume, lateral to the plume (both horizontally and vertically), and downgradient of the plume.

I hope these recommendations are of assistance to you. If you have questions or require further help, please call me at 3-9296.

cc. S. Padovani, Section Chief, AADS Section



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